

## Message Text

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ACTION NEA-10

INFO OCT-01 EUR-12 EA-07 ISO-00 ERDA-05 AID-05 CEA-01

CIAE-00 EPG-02 DODE-00 EB-07 FEAE-00 FPC-01 H-01

INR-07 INT-05 L-03 NSAE-00 NSC-05 OMB-01 PM-04

USIA-06 OES-07 SP-02 SS-15 STR-04 TRSE-00 ACDA-07

IGA-02 XMB-02 ABF-01 /123 W

-----041733Z 128305 /41

R 041148Z MAY 77

FM AMEMBASSY NEW DELHI

TO SECSTATE WASHDC 3169

INFO USDOC WASHDC

AMEMBASSY PARIS

AMEMBASSY SINGAPORE

AMEMBASSY LONDON

AMEMBASSY ABU DHABI

AMCONSUL BOMBAY

AMCONSUL CALCUTTA

AMCONSUL MADRAS

LIMITED OFFICIAL USE SECTION 1 OF 2 NEW DELHI 6411

DEPT PLEASE PASS TO USBURMINES AND USGS

EO 11652: NA

TAGS: ENRG, EMIN, IN

SUBJ: BOMBAY HIGH DEVELOPMENTS

BEGIN SUMMARY: WITH CURRENT CRUDE PRODUCTION AT 32,000 B/D, INDIA'S OIL AND NATURAL GAS COMMISSION (ONGC) IS OPTIMISTIC OF ACHIEVING 80,000 B/D (4 MILLION METRIC TONS PER ANNUM-MTPA) BY YEAR END 1977 FROM THE OFFSHORE BOMBAY HIGH (BH) OIL FIELD. THE ONGC EXPECTS THE PRODUCTION POTENTIAL TO REACH 200,000 B/D BY 1981, IF NOT SOONER, WITH THE RECENT SIGNING OF A FOUR-YEAR TECHNICAL SERVICES CONTRACT WITH COMPAGNIE FRANCAISE

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DES PETROLES (CFP) OF FRANCE FOR OPTIMIZING THE DEVELOPMENT OF THE BH. IN ADDITION, 3 TO 4 MILLION CUBIC METERS OF GAS PER DAY ARE ANTICIPATED FROM THE BH AND BASSEIN NORTH STRUCTURES BY 1981. THESE PRODUCTION TARGETS, HOWEVER, HINGE ON THE GOI CONTINUING TO GIVE TOP PRIORITY TO ITS ENERGY NEEDS WHICH CALL FOR THE INSTALLATION OF SUBSEA OIL AND GAS

PIPELINES LINKING THE BH AND THE BASSEIN FIELDS WITH ONSHORE TERMINAL FACILITIES BY MID-1978. THE BH DEVELOPMENT HAS BEEN DIVIDED INTO FIVE PHASES WITH AN OVERALL PLAN OUTLAY OF RS 8.54 BILLION, OR CLOSE TO \$1 BILLION, SCHEDULED UP THROUGH 1979/80 TO ACHIEVE THESE TARGETS. THE GEOLOGICAL RESERVES OF THE BH ALONE ARE NOW ESTIMATED AT 900 MILLION MT OF CRUDE OIL. END SUMMARY.

1. DEVELOPMENT PROGRAM. CRUDE PRODUCTION FROM THE BH NOW AT 32,000 B/D FROM SEVEN WELLS ON PLATFORMS "A" AND "D", IS EXPECTED TO BE GRADUALLY STEPPED UP TO 80,000 B/D, EQUIVALENT TO FOUR MMTPA BY YEAR END (DECEMBER 1977), WHICH WILL COMPLETE PHASE II DEVELOPMENT. MCDERMOTT HAS COMPLETED THE INSTALLATION OF THE THREE REMAINING PLATFORMS ("B", "C" & "E") AND IS NOW BIDDING FOR PLATFORM "F" TO BE SET UP NEAR "A" IN CONNECTION WITH THE SUBSEA PIPELINE. PRODUCTION DRILLING IS TO CONTINUE THROUGH THE MONSOON SEASON WITH 18 OR SO WELLS TO BE COMPLETED BY THE END OF THIS YEAR. EACH 4-WELL PLATFORM REPORTEDLY WILL YIELD AT LEAST 20,000 B/D. ALTHOUGH SOME INTERRUPTION IN FLOW OF CRUDE IS EXPECTED DURING THE MONSOON SEASON, ACTUAL OFFSHORE PRODUCTION FOR THE CURRENT FISCAL YEAR SHOULD REACH BETWEEN 2.25 AND 2.20 MILLION MT. THE TOTAL COST OF PHASE I AND II IS PLACED AT RS 1.50 BILLION, INCLUDING RS 710 MILLION FOR SEISMIC SURVEYS AND DRILLING.

2. BEFORE YEAR END, PHASE III DEVELOPMENT SPREAD OVER 1977/78 AND 1978/79 IS ALSO TO BE TAKEN UP WITH THE LAY-LIMITED OFFICIAL USE

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ING OF TWO PARALLEL PIPELINES (30" & 26" OD) FOR CRUDE AND GAS FROM THE BOMBAY HIGH VIA THE BASSEIN STRUCTURE TO TERMINAL FACILITIES AT URAN AND TROMBAY, A DISTANCE OF 215 KMS. ALTHOUGH SOME QUESTIONS HAVE BEEN RAISED REGARDING THE FINAL LOCATION OF THE ONSHORE FACILITIES, URAN VERSUS TARAPUR TO SUPPLY GAS TO GUJARAT, STUDIES INDICATE THAT URAN OFFERS THE MOST SUITABLE SITE AT THIS TIME. ACCORDING TO ONGC OFFICIALS, ANY CHANGE IN THE ALIGNMENT AT THIS STAGE WOULD ONLY DELAY THE PROJECT AT A SIGNIFICANT INCREASE IN COST. BOTH LINES ARE OVERSIZED IN ORDER TO HANDLE 18 TO 25 MILLION MT PER ANNUM OF CRUDE VIA THE 30" LINE AND 7.5 TO 18 MILLION CUBIC METERS OF GAS PER DAY VIA THE 26" LINE. WHILE IMPOSING SOME ADDITIONAL INSTALLATION COSTS BY OVERSIZING THESE LINES, THIS IS CONSIDERED MINIMAL COMPARED TO THE HIGHER THROUGHPUTS THAT CAN BE ACHIEVED AT THE COST OF INSTALLING ADDITIONAL PUMPING AND COMPRESSOR FACILITIES, SHOULD ADDITIONAL OIL/GAS FIELDS BE DISCOVERED.

3. THE PHASE III DEVELOPMENTS FOR RAISING CRUDE PRODUCTION FROM 80,000 TO 120,000 B/D (6 MTPA) CALL FOR:  
(1) INSTALLATION OF FOUR WELL PLATFORMS AND DRILLING 16 PRODUCTION WELLS; (2) DEVELOPMENT OF ONSHORE OIL AND GAS TERMINAL FACILITIES AT URAN THAT ARE TO INCLUDE CRUDE STORAGE FACILITIES, A CRUDE STABILIZATION PLANT TO HANDLE UP TO 11 MILLION MT OF CRUDE PER ANNUM AND A GAS FRACTIONATION PLANT CAPABLE OF HANDLING 4 TO 6 MILLION CUBIC METERS OF GAS PER DAY. THE GAS FRACTIONATION PLANT IS TO PROVIDE INITIALLY FOR TWO TRAINS OF GAS SEPARATION, ONE FOR LPG AND ONE FOR LIGHTER HYDROCARBONS FOR USE IN THE FERTILIZER AND POWER PLANTS WITH A THIRD STREAM FOR PETRO-CHEMICALS TO BE INSTALLED LATER; (E) DEVELOPMENT OF SHORE BASED SUPPLY FACILITIES AT NHAVA SHEVA; (R) INSTALLATION OF A PUMPING-CUMCOMPRESSOR PLATFORM FOR PUMPING A MINIMUM OF 80,000 B/D AND 3 MILLION CUBIC METERS OF GAS PER DAY VIA THE PIPELINES: AND (T) DEVELOPMENT OF A LIMITED OFFICIAL USE

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TELECOMMUNICATION AND TELEMETRY NETWORK. PHASE III ALSO CALLS FOR DEVELOPING BASSEIN NORTH STRUCTURE WITH THE INSTALLATION OF A WELL-CUM-PRODUCTION PLATFORM LINKED TO THE BOMBAY-URAN PIPELINE. URAN IS IDEALLY SUITABLE IN RELATION TO THE TROMBAY REFINERIES WHERE A MAJOR SHARE OF THE CRUDE IS TO BE REFINED AND TO BUTCHER ISLAND WHERE TERMINAL FACILITIES ARE TO SET UP FOR EXPORTING THE BH CRUDE TO VARIOUS COASTAL REFINERIES AND ABROAD. THE TOTAL INVESTMENT PLANNED FOR PHASE III IS ESTIMATED AT RS 5.4 BILLION, INCLUDING RS 440 MILLION FOR DRILLING AND OPERATIONAL EXPENSES RELATED TO THE BH AND BASSEIN STRUCTURE AND RS 2.2 BILLION FOR THE INSTALLATION OF THE OIL AND GAS PIPELINES. THIS LATTER INVESTMENT INVOLVES THREE

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ACTION NEA-10

INFO OCT-01 EUR-12 EA-07 ISO-00 ERDA-05 AID-05 CEA-01  
CIAE-00 EPG-02 DODE-00 EB-07 FEAE-00 FPC-01 H-01  
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R 041148Z MAY 77

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MAJOR CONTRACTS; NAMELY, (1) THE PIPE SUPPLY; (W) PIPE COATING; AND (3) PIPE LAYING. BROWN AND ROOT, SANTA FE, AND MCDERMOTT (ALL US), ETPM (FRENCH), AND NIPPON STEEL ARE AMONG THE INTERNATIONAL FIRMS BIDDING ON THIS PROJECT. THE TENDER DOCUMENTS FOR THIS LATTER PROJECT ARE YET TO BE RELEASED ALTHOUGH SCHEDULED FOR LAST APRIL 7. OTHER MAJOR OUTLAYS DURING THIS DEVELOPMENT PHASE INCLUDE RS 1.45 BILLION FOR WELL PLATFORMS/PROCESS PLATFORMS AND CONNECTING PIPELINES IN BH AND RS 740 MILLION FOR THE DEVELOPMENT OF THE URAN OIL AND GAS TERMINAL AND NHAVA SHEVA SUPPLY BASE.

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4. PHASES IV AND V CALL FOR RAISING CRUDE PRODUCTION RATE TO 200,000 B/D ALONG WITH 3 TO 4 MILLION CUBIC METERS OF ASSOCIATED GAS PER DAY BY 1981. FOR EACH PHASE, 12 TO 16 PRODUCTION WELLS MAY HAVE TO BE DRILLED FROM FOUR WELL PLATFORMS. THE ESTIMATED EXPENDITURES FOR THESE TWO PHASES ARE RS 750 AND RS 770 MILLION RESPECTIVELY, WHICH INCLUDES A TOTAL OF RS 720 MILLION FOR DRILLING OPERATIONS IN BOTH PHASES. DEVELOPMENT OF THE BASSEIN SOUTH STRUCTURE, WHICH ACCORDING TO PRESS REPORTS, IS ESTIMATED TO HAVE A POTENTIAL OF 7 MILLION CUBIC METERS OF GAS PER DAY BASED ON TWO WELLS DRILLED TO DATE, MAY ALSO BE TAKEN UP IF FULL UTILIZATION OF THE GAS CAN BE ESTABLISHED. HOWEVER, ADDITIONAL ASSESSMENT WELLS ARE REQUIRED BEFORE DRAWING ANY CONCLUSIONS ON THE FIELD'S ACTUAL POTENTIAL.

5. PRODUCTION: THE PROJECTED PRODUCTION TARGETS OF

CRUDE OIL FROM THE BH ARE (FIGURES IN MILLION MT) 2.5 IN 1977/78; 4.75 IN 1978/79; 6.0 IN 1979/80; 8.0 IN 1980/81; AND 10.0 IN 1981/82. INCLUDING THE CRUDE PRODUCTION FROM THE BASSEIN NORTH STRUCTURE, WHICH IS CURRENTLY BEING DEVELOPED, TOTAL OFFSHORE PRODUCTION OF CRUDE COULD BE INCREASED FURTHER BY AS MUCH AS 1 TO 3 MILLION MT PER ANNUM BY 1980/81. IN ADDITION, REI MILLION CUBIC METERS OF ASSOCIATED GAS IS EXPECTED TO BE AVAILABLE IN 1979/80; REACHING 1,168 MILLION CUBIC METERS IN 1980/81. THIS COULD, HOWEVER, BE SIGNIFICANTLY HIGHER IF THE BASSEIN SOUTH STRUCTURE, A SIZABLE NATURAL GAS FIELD, IS DEVELOPED.

6. RESERVES. BASED ON 13 ASSESSMENT WELLS COMPLETED TO DATE PLUS ANOTHER ONE (BH 14) NOW BEING DRILLED, THE GEOLOGICAL RESERVES OF THE BOMBAY HIGH ARE OF THE ORDER OF 900 MILLION MT WITH THE RECOVERABLE RESERVES ESTIMATED AT ABOUT 20 PERCENT. HOWEVER, ACCORDING TO ONGC OFFICIALS THIS IS CONSIDERED TO BE ON THE CONSERVATIVE SIDE AND LIMITED OFFICIAL USE

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WITH WATER INJECTION AND SECONDARY RECOVERY METHODS, THE RECOVERABLE RESERVES SHOULD BE SUBSTANTIALLY HIGHER. THE GAS TO OIL RATIO IS REPORTED TO BE 600. ONGC IS NOW UNDERTAKING MATHEMATICAL MODELLING STUDIES AT THEIR COMPUTER CENTER IN DHRA DUN TO ARRIVE AT A MORE ACCURATE PICTURE OF THE RESERVES AND TO PREDICT THE BEHAVIOR OF THE RESERVOIR IN THE EARLY YEARS OF THE FIELD'S LIFE. IN THIS CONNECTION, ONGC HAS RECENTLY SIGNED A FOUR-YEAR TECHNICAL SERVICES CONTRACT WITH CFP OF FRANCE FOR OPTIMIZING THE DEVELOPMENT OF THE BH. THIS WORK WILL ENCOMPASS RESERVOIR ASSESSMENT, MANAGEMENT, ENGINEERING STUDIES, AND DATA GATHERING AND INTERPRETATION AS WELL AS LABORATORY STUDIES FOR HANDLING THE HIGH POUR-POINT OIL. THE CONTRACT ALSO PROVIDES FOR A ONE YEAR EXTENSION TO INCLUDE OTHER OFFSHORE AREAS SHOULD CFP SUCCEED IN THEIR TASK AHEAD OF SCHEDULE. CFP'S WORK WILL NO DOUBT BE LINKED TO THE INSTITUTE OF RESERVOIR STUDIES AT AHMEDABAD TO BE SET UP WITH FRENCH ASSISTANCE.

7. COMMENT: ALTHOUGH THE PRESENT ADMINISTRATION'S ENERGY POLICY HAS YET TO EMERGE, WE DO NOT ANTICIPATE ANY SLACKENING IN THE PRESENT RATE OF OFFSHORE EXPLORATION AND DEVELOPMENT. HOWEVER, ESCALATING COSTS AND UNFORESEEN DEVELOPMENTS ASSOCIATED WITH OIL EXPLORATION COULD INTRODUCE NEW FACTORS IN THE PLAN OUTLAY AND PROJECTED SCHEDULE.

8. WE UNDERSTAND THAT ONGC OFFICIALS ARE PLANNING TO VISIT WASHINGTON NEXT WEEK TO NEGOTIATE A WORLD BANK

LOAN FOR FINANCING THE SUBSEA PIPELINE AND PERHAPS OTHER  
OFFSHORE PROJECTS AS WELL. ACCORDING TO AN ONGC OFFI-  
CIAL, THE PIPELINE CONTRACT WILL PROBABLY BE AWARDED TO  
A US FIRM FOLLOWING THE WASHINGTON MEETING. WE ARE ALSO  
TOLD THAT ONGC HAS ENDORSED PRICE INTERNATIONAL FOR THE  
PIPE COATING PROJECT WITH A JAPANESE CONSORTIUM SUPPLY-  
ING THE PIPE. HOWEVER, WE ARE UNAWARE OF ANY CONTRACTS  
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HAVING BEEN SIGNED TO DATE.

9. AN EXCHANGE RATE OF RS 8.75 EQUALS \$1.00 SHOULD BE  
USED FOR CONVERSION PURPOSES.  
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## Message Attributes

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**TAGS:** ENRG, EMIN, IN  
**To:** STATE  
**Type:** TE  
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